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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,935	07/24/2008	Boris L. Kuzin	05788.0402	8945

22852 7590 07/13/2011

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EXAMINER	
MOHADDES, LADAN	
ART UNIT	PAPER NUMBER
1726	

MAIL DATE	DELIVERY MODE
07/13/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,935	KUZIN ET AL.	
	Examiner	Art Unit	
	LADAN MOHADDES	1726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) *1-39,50,52-54 and 56-77* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-49,51,55 and 78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/22/2006; 07/24/2008; 12/20/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, Species (a), claims 40-49, 51, 55 and 78 in the reply filed on 05/11/2011 is acknowledged. The traversal is on the ground(s) that the same technical features are disclosed in Group I and II as argued in the response filed on 02/24/2011. This is not found persuasive because the technical features of the process of Group II such as the operating temperature and the type fuel used are not defined in the inventions of Group I. Therefore, the examiner maintains her position that the application contains the 3 groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 40, 44, 47, 48 and 78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40, 44 and 78 disclose that the metal content in the cermet is higher than 50 wt% (between 60-90 wt% as in claim 44). It is not clear if the above mentioned wt% refer to metallic portion of the cermet or total metal content of cermet as the ceramic portion of the cermet can also contain metals in the form of oxide or dopants. For the

purpose of compact prosecution the examiner has taken the position to interpret the claim as metallic portion of the cermet having a metal content of above 50 wt% or between 60-90 wt% as in claim 44

Additionally, the term "substantially" in claims 40 and 78 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "substantially" is often used in conjunction with another term to describe a particular characteristic of the claimed invention. It is a broad term. *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960).

4. Claims 47 and 48 recites the limitation "the ceramic material" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. The Examiner has taken the position to interpret this limitation to be referring to "an electrolyte ceramic material portion" recited in claim 40.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 40, 43, 45, 51, 55 and 78 are rejected under 35 U.S.C. 102(b) as being anticipated by Lockhart et al. (US 5261944, hereafter referred to as LOCKHART).

With respect to claims 40, 45 and 78, LOCKHART discloses a solid oxide fuel cell (SOFC) with an anode, a cathode and an electrolyte membrane disposed in between the cathode and the anode, wherein the anode comprises a cermet comprising a metal uniformly interdispersed, wherein the metal content is more than 50% and wherein the specific surface area is 1.9 m2/g (Claim 12 and Example 12 and table II).

With respect to claim 43, LOCKHART discloses Nickel (Claim 12).

With respect to claim 51, LOCKHART discloses lanthanum manganate cathode (Claim 12).

With respect to claim 55, LOCKHART discloses yttria-stablized zirconia (Claim12).

Claim Rejections - 35 USC § 102/103

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 40-49, 51, 55 and 78 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Joerger et al. (European Solid Oxide Fuel cell Forum, 2002, hereafter referred to as JOERGER, already of record).

With respect to claims 40, 45 and 78, JOERGER discloses a solid oxide fuel cell (SOFC) with an anode, a cathode and an electrolyte membrane disposed in between the cathode and the anode (Introduction and Experimental), wherein the anode comprises a cermet comprising a metal (Experimental) uniformly interdispersed (Fig. 1)

wherein the metal content is more than 50% (Experimental and Results). JOERGER does not expressly disclose the specific surface area of the cermet, however, a cermet with the same composition, microstructure and particle size will inherently have the same surface area.

Alternatively, it would have been obvious for the person of ordinary skills in the art to adjust the surface area to obtain optimum conductivity (Results and Discussion).

With respect to claims 41-43, JOERGER discloses copper (Introduction and Experimental and Results).

With respect to claim 44, JOERGER discloses copper with 60 and 73 wt%.

With respect to claim 46, JOERGER does not expressly disclose the porosity of the cermet but teaches that the porosity can be measured and adjusted bases on the percentage of the copper and reduction process to obtain optimum conductivity (Results and Discussion). Therefore, it would have been obvious for the person of ordinary skills in the art to adjust the porosity to the levels disclosed by the Applicant to obtain optimum conductivity.

\with respect to claim 47, JOERGER discloses specific conductivity higher than 0.01 S/cm at 700 ºC.

With respect to claims 48 and 49, JOERGER discloses gadolinia doped ceria (Abstract and Experimental).

With respect to claim 51, JOERGER discloses platinum cathode (Experimental).

With respect to claim 55, JOERGER discloses yttria-stablized zirconia (Experimental).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lockhart et al. (US 5261944, hereafter referred to as LOCKHART) as applied to claims 40, 43, 45, 51, 55 and 78 above .

With respect to claim 44, LOCKHART discloses nickel content of 35-70 wt%. As stated in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990), "in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists". (See also *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997).

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LADAN MOHADDES whose telephone number is (571)270-7742. The examiner can normally be reached on Monday to Thursday from 8:30 AM to 6:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LADAN MOHADDES/
Examiner, Art Unit 1726

/Patrick Joseph Ryan/
Supervisory Patent Examiner, Art Unit 1726